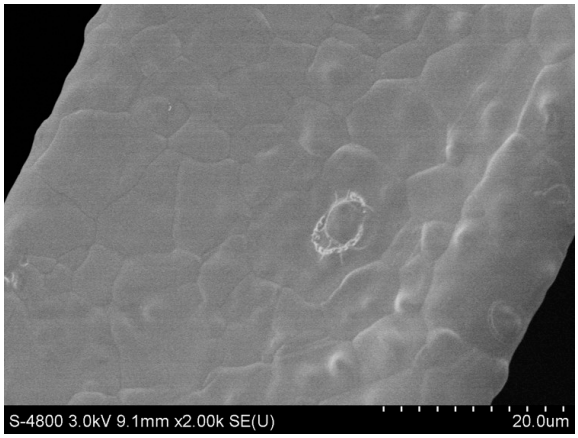

Figure S1. SEM images of pre-treated Ni foam

Figure S2. Photograph of commercial Ni foam and (Ni/Fe/Mo)OOH electrodes prepared under different reaction times.

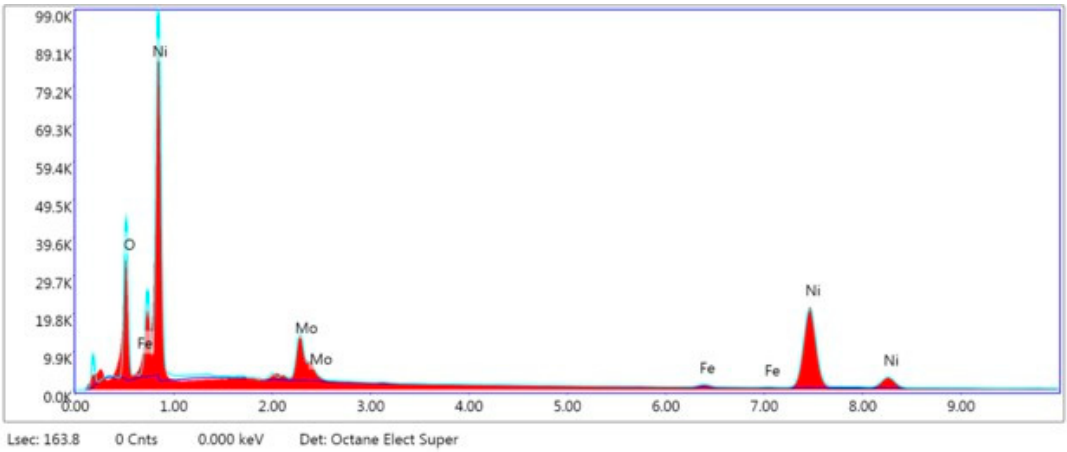

Figure S3. The EDS spectrum of (Ni/Fe/Mo)OOH using SEM

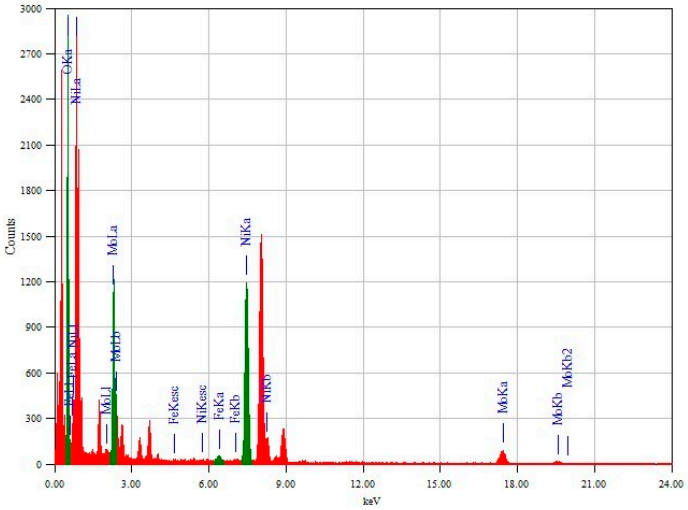

Figure S4. The EDS spectrum of (Ni/Fe/Mo)OOH using TEM

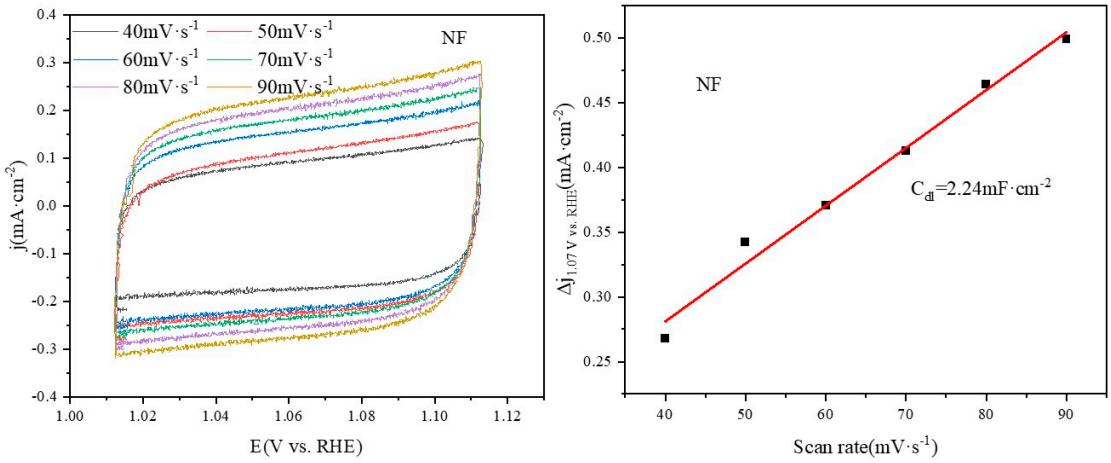

Figure S5. CV curves of Ni foam, calculation of C_{dl} involves plotting capacitive current density against scan rate and fitting a linear regression to the resulting plot

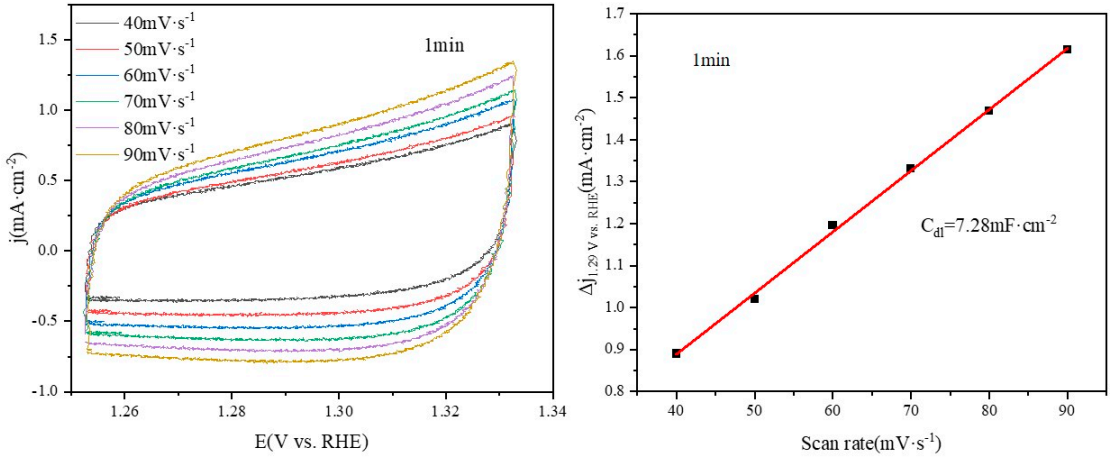

Figure S6. CV curves of (Ni/Fe/Mo)OOH (reaction time: 1 min), calculation of C_{dl} involves plotting

capacitive current density against scan rate and fitting a linear regression to the resulting plot

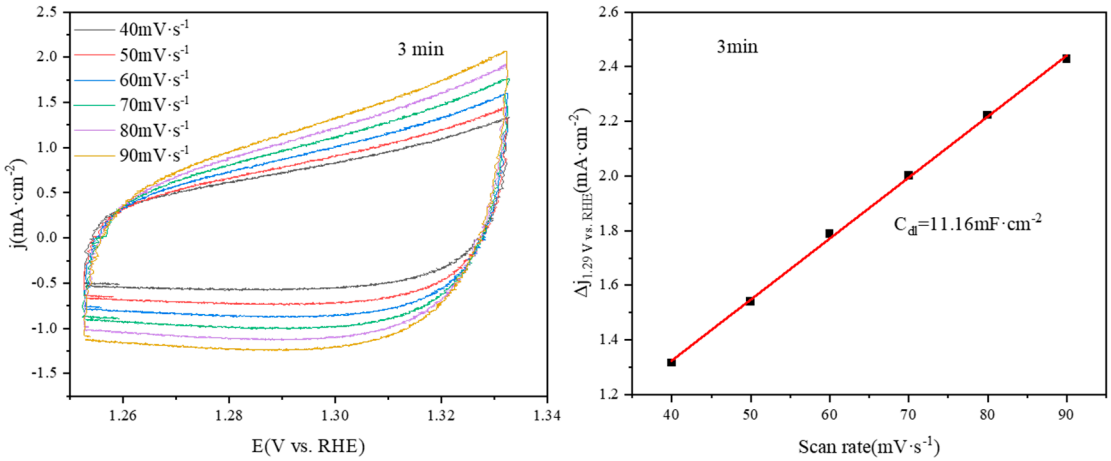

Figure S7. CV curves of (Ni/Fe/Mo)OOH (reaction time: 3 min), calculation of C_{dl} involves plotting capacitive current density against scan rate and fitting a linear regression to the resulting plot

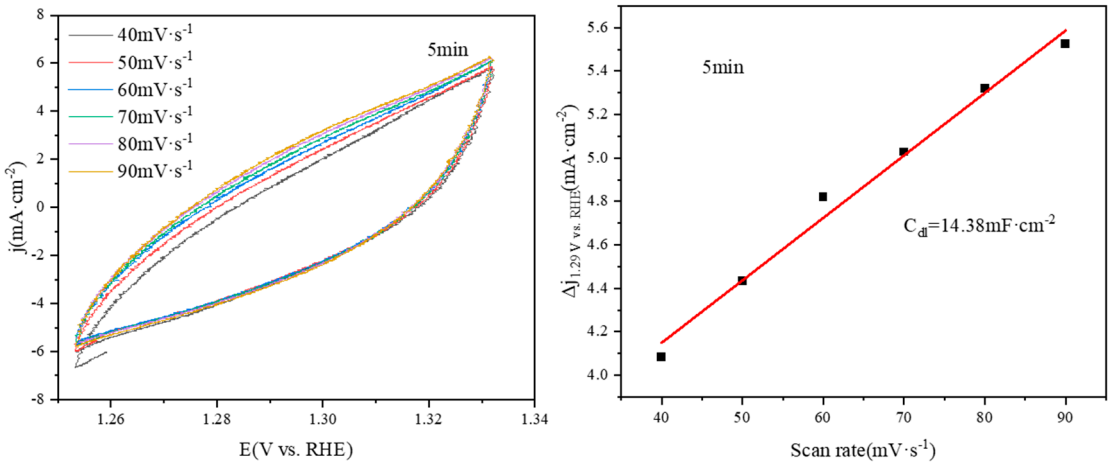

Figure S8. CV curves of (Ni/Fe/Mo)OOH (reaction time: 5 min), calculation of C_{dl} involves plotting capacitive current density against scan rate and fitting a linear regression to the resulting plot

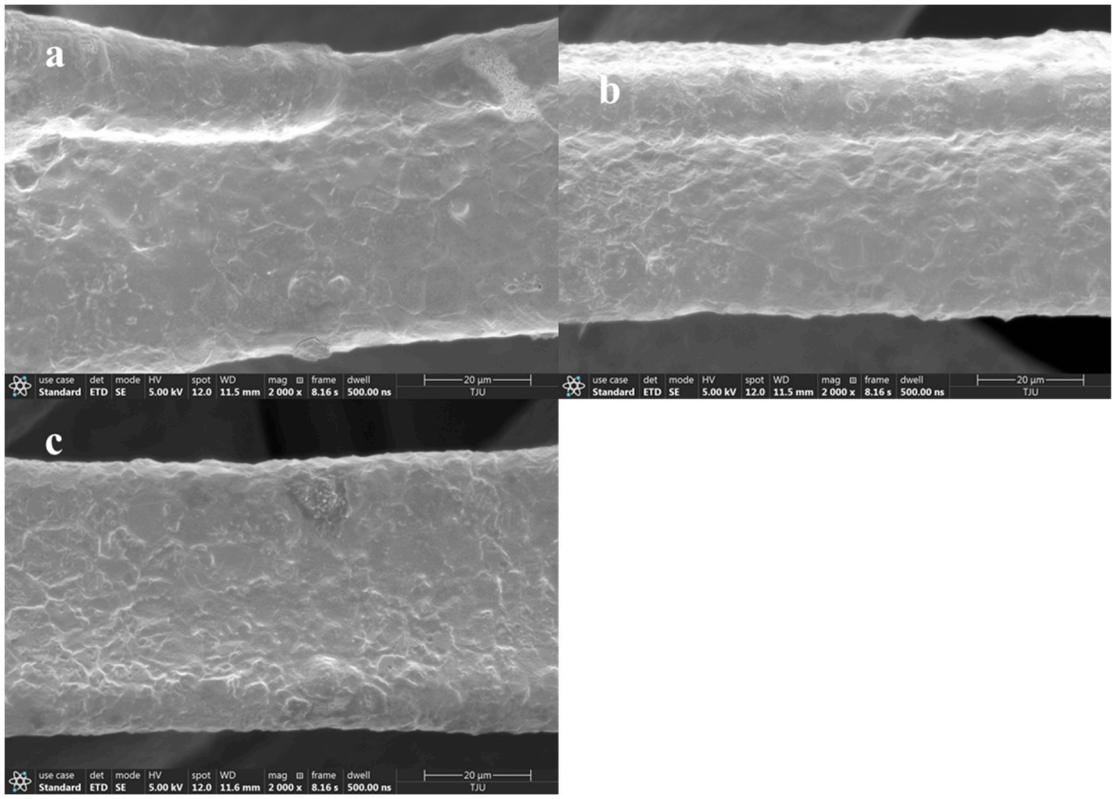

Figure S9. SEM images of (Ni/Fe)OOH at different immersing time, (a) 1 min, (b) 3 min, (c) 5 min

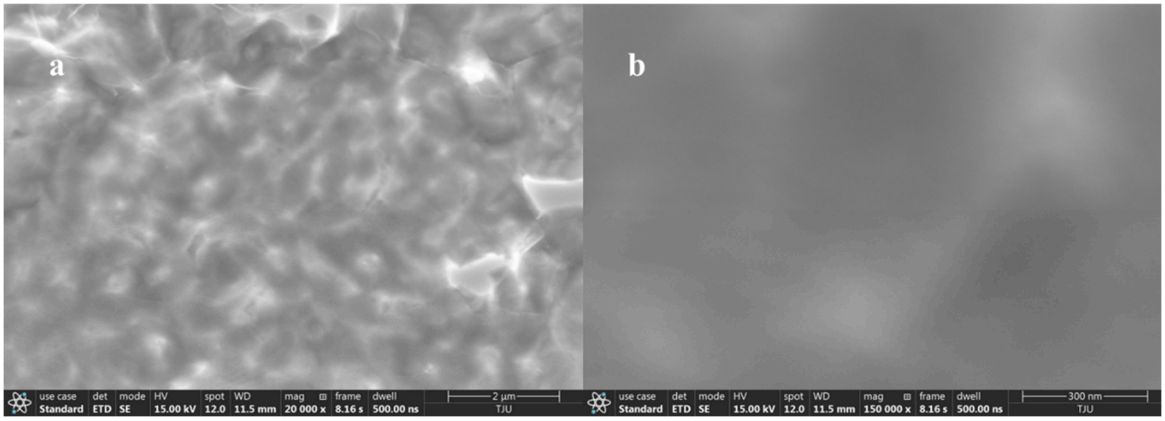

Figure S10. HR-SEM images of (Ni/Fe)OOH (5 min).

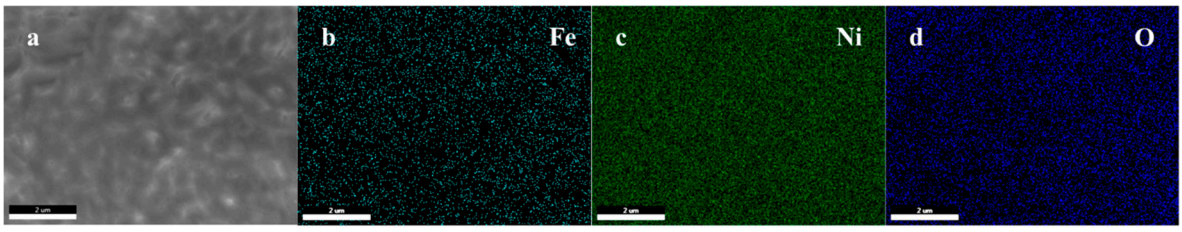

Figure S11. EDS mapping images of the (Ni/Fe)OOH sample with the immersing time of 5 min

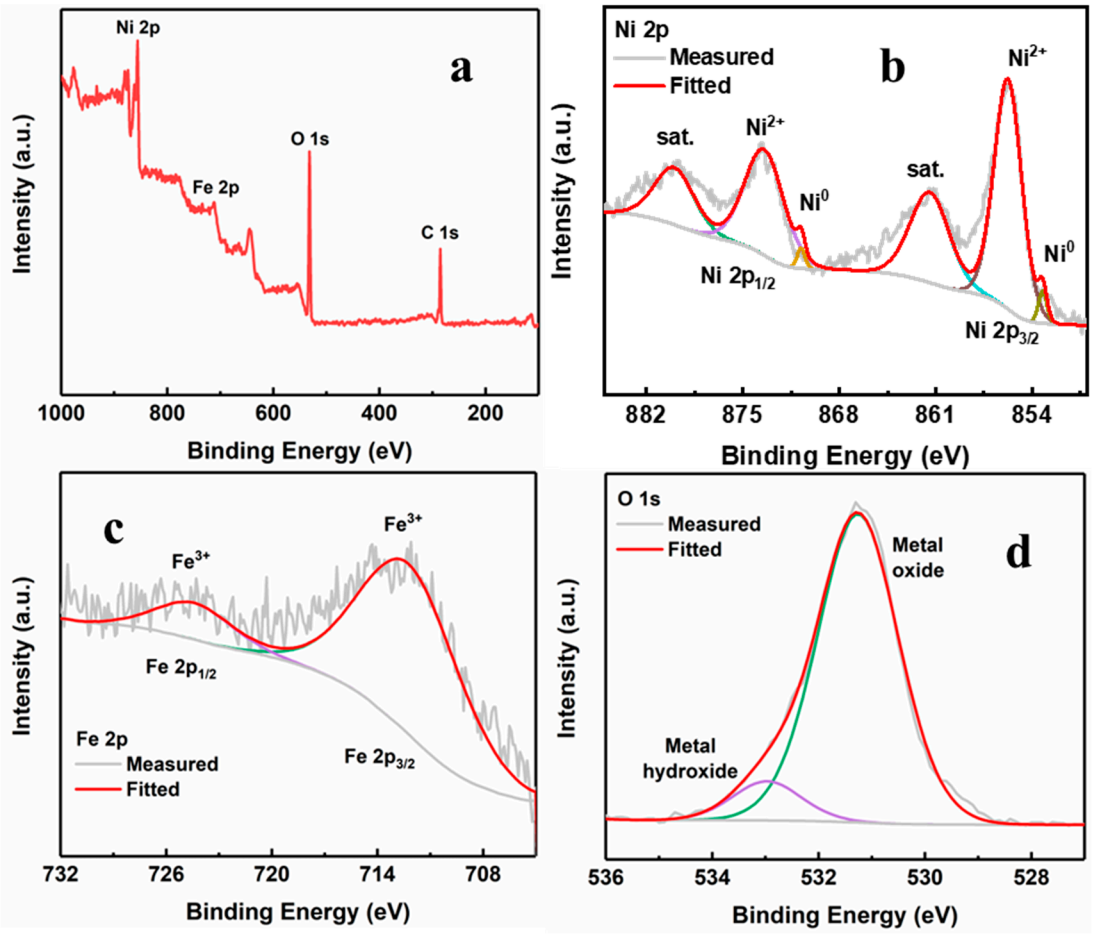

Figure S12. XPS spectra for (Ni/Fe)OOH (5 min): (a) Survey, (b) Ni 2p, (c) Fe 2p, (d) O 1s

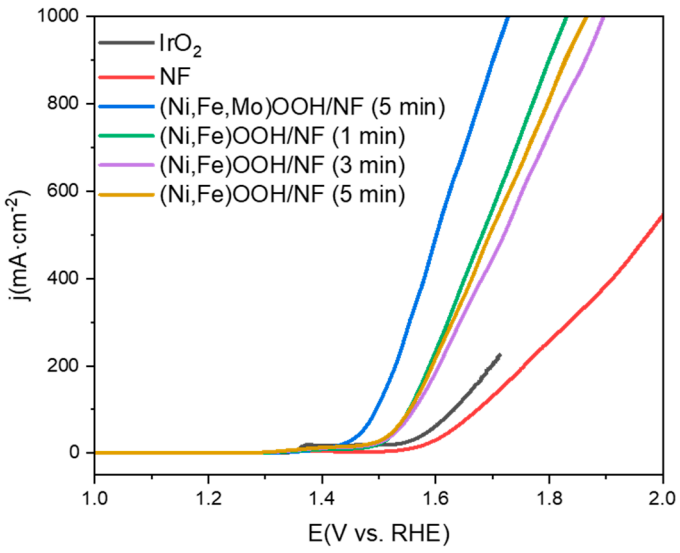

Figure S13. Polarization curves of Ni foam, IrO_2, (Ni/Fe/Mo)OOH and (Ni/Fe)OOH electrodes.

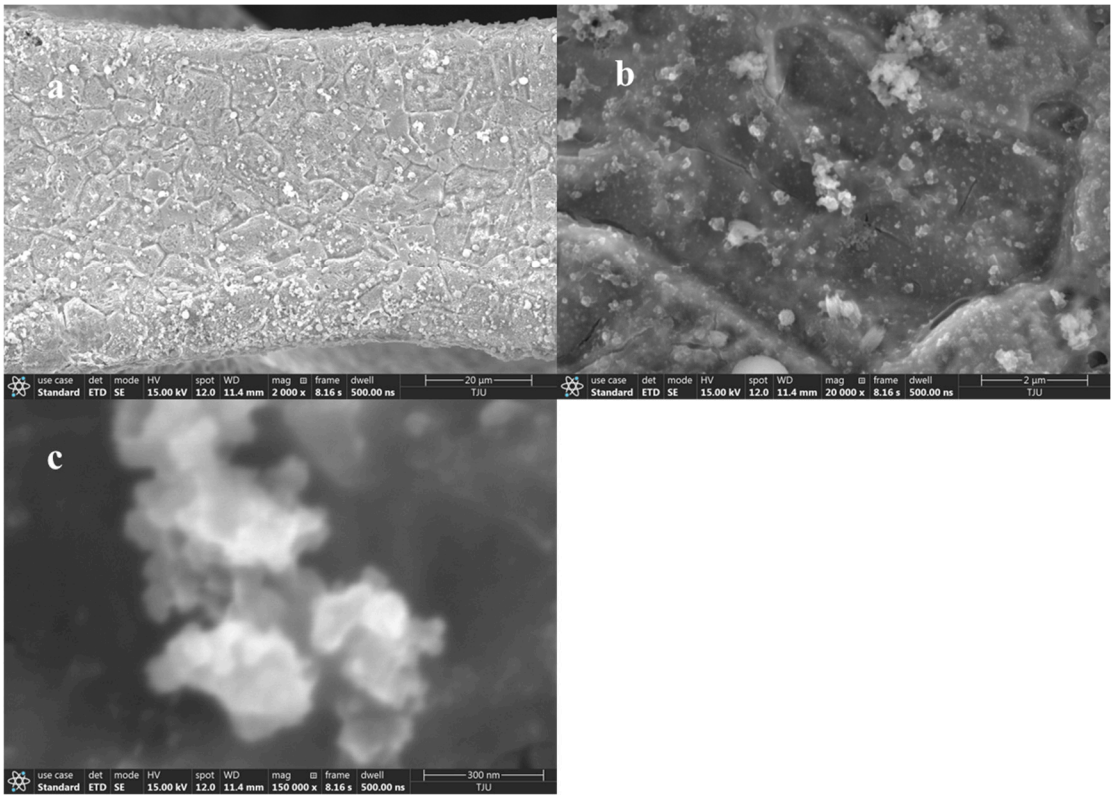

Figure S14. SEM image of (Ni/Fe/Mo)OOH catalyst after 72h of hydrogen production at a current density of 100 mA·cm^{-2} in 1 M KOH electrolyte

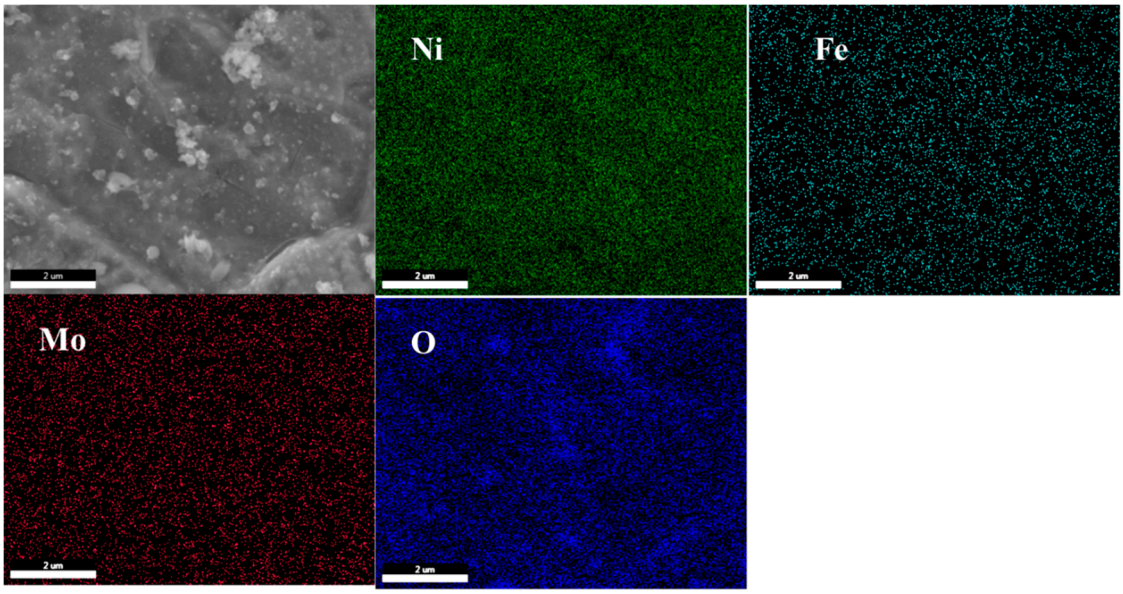

Figure S15. EDS mapping images of the (Ni/Fe/Mo)OOH sample after 72h of hydrogen production at a current density of 100 mA·cm^{-2} in 1 M KOH electrolyte

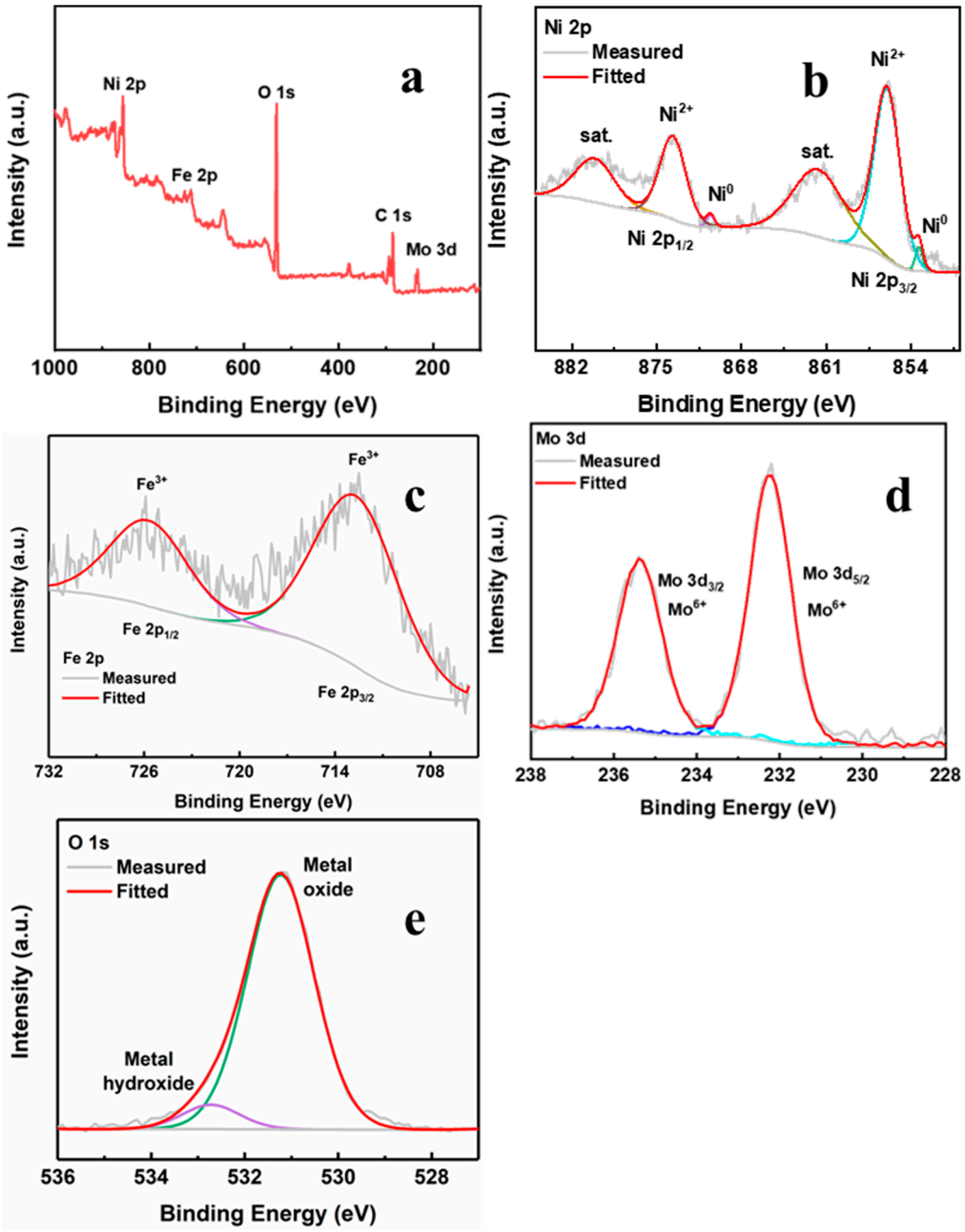

Figure S16. XPS spectra for (Ni/Fe/Mo)OOH after 72h of hydrogen production at a current density of 100 mA·cm^{-2} in 1 M KOH electrolyte: (a) Survey, (b) Ni 2p, (c) Fe 2p, (d) Mo 3d, (e) O 1s

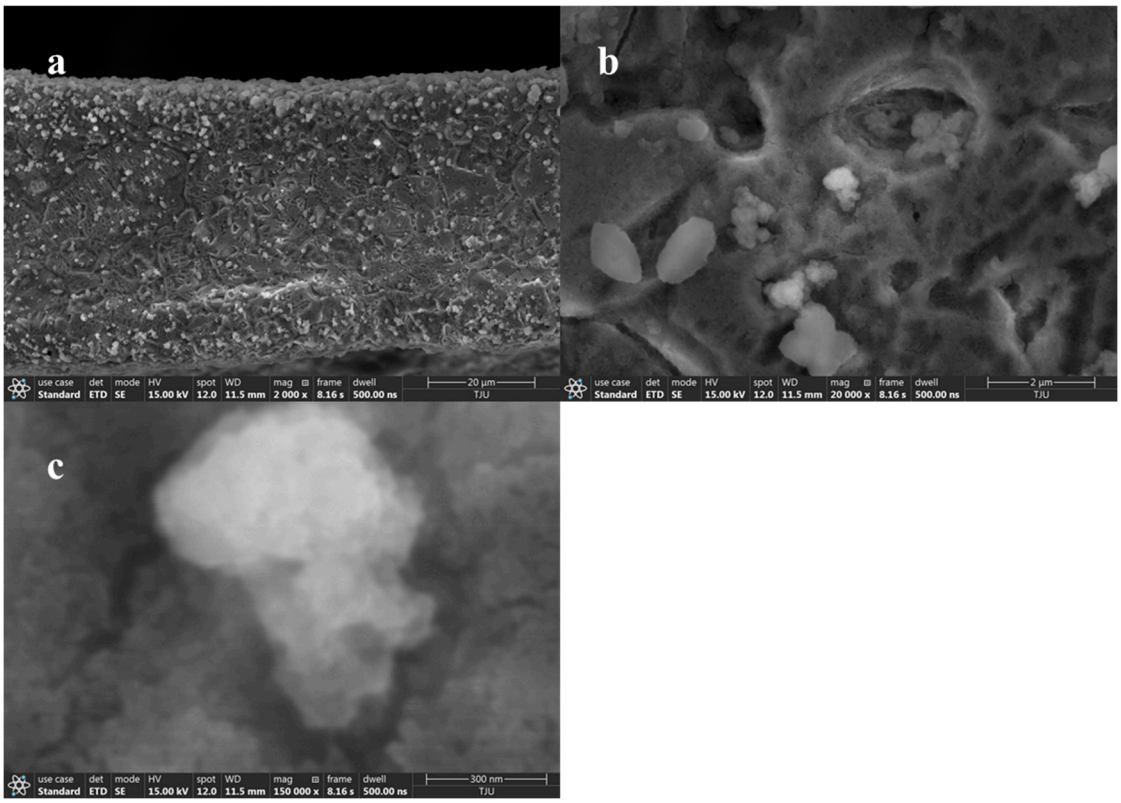

Figure S17. SEM image of (Ni,Fe,Mo)OOH catalyst after 72h of hydrogen production at a current density of 100 mA·cm^{-2} in alkaline natural seawater electrolyte

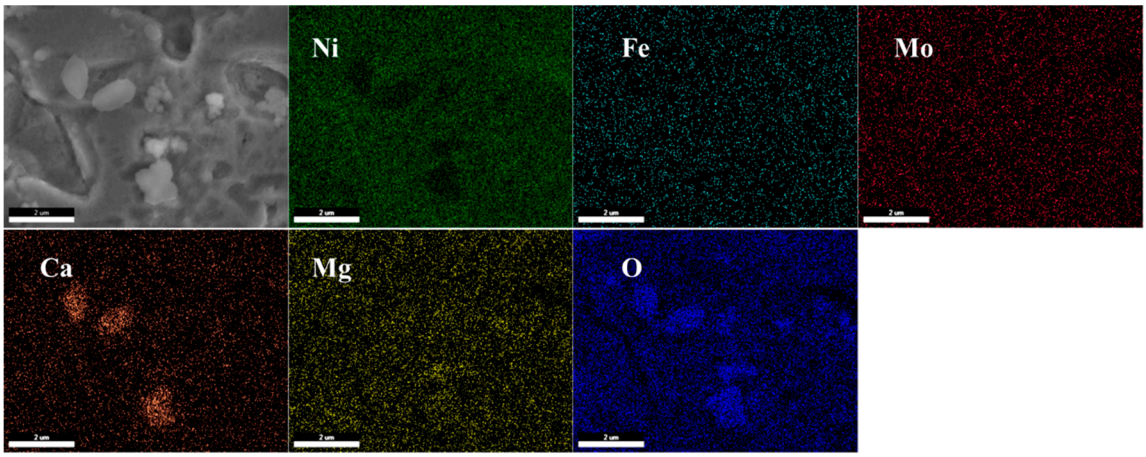

Figure S18. EDS mapping images of the (Ni/Fe/Mo)OOH sample after 72h of hydrogen production at a current density of 100 mA·cm^{-2} in alkaline natural seawater electrolyte